

AX analytical balances and
MX/UMX microbalances from
METTLER TOLEDO.

Utmost measurement
performance for maximum
certainty.

That's the weigh!



**Setting the standard:
analytical and microbalances.**

METTLER TOLEDO



A question of adjustment.

Configure your own specific methods.

- Eight mutually independent user settings can be configured at will
- Easy operation with TouchScreen
- Alphanumeric keypad for clear identification of samples
- Information window gives clear overview of application progress

“Now I can configure the balance individually. Just the way I like it. I save the selected settings and activate them under my name. So I always work with a completely personalized balance.”

Gisela Bender, lab technician

Direct access.

Individuality at the workplace is motivating. And results in fast and reliable work. Which is why the balance can be configured according to the task. Up to eight password-protected methods or user settings can be defined. The desired settings can be called up at a keystroke.

Easy operation.

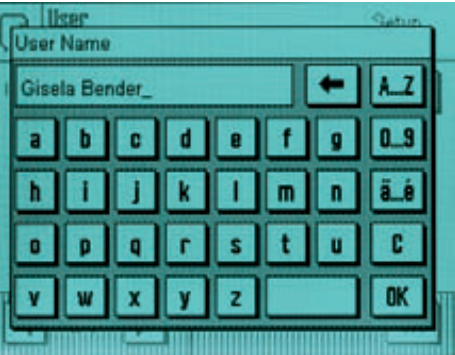
Thanks to touchscreen technology configuring the balance is especially easy. The screen guides you. You select and confirm with the touch of a fingertip. The selected settings are then saved automatically.

Everything visible.

A glance at the large, clear screen tells you not only the weight value but also information about your application. The information to be displayed about the application and functions can be individually defined by each user.

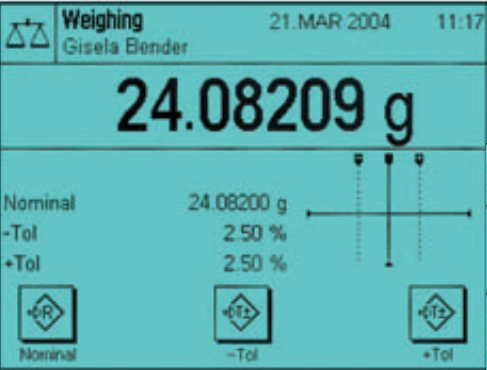
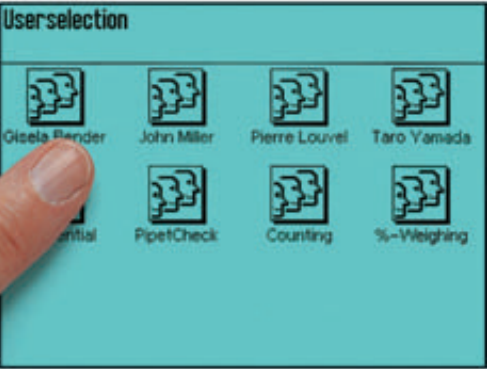
Multilingual dialogue.

The operator dialogue is in the language of your choice: English, German, French, Spanish, Italian, Japanese or Russian.



Practical.
The alphanumeric keypad can be called up for easy input of user, application, and sample information.

A soft touch on the name.
One of the eight individual balance configurations is immediately activated.



During the process: Easy to operate, clear overview, reliable functioning.



Inform:
The display can show additional individual information about the progress of each application.

Research Lab GmbH
Forschungslabor GB24
17. Apr 2004 13:16
Benutzer Gisela Bender
Typ AX204
SNR 1234567890
Waage RC-QC166
Neue Charge D-00/04[22]
D 214.6498 g

Unterschrift
.....

Perfect documentation also. Assured traceability complies with all quality assurance regulations.

Door opener.

SmartSens automatically opens the weighing chamber for you.

- SmartSens for hands-free operation
- Operator terminal can be positioned as convenient
- Display unit can be set at the best angle for good visibility

Automatic and smart.

SmartSens comprises two sensors, one at each side of the weighing chamber. If a hand approaches, the chamber automatically opens at the left, at the right, or completely. When the hand is removed, the glass weighing chamber doors slide shut and the weighing process starts.

Safe weighing results.

Hands-free weighing with SmartSens lets you focus entirely on handling the sample. So you can avoid unnecessary waste of sample material.

Personal adjustment.

The way SmartSens functions can be configured differently to suit personal work styles. Each configuration is then saved together with other settings for up to eight different balance operators.

No messing.

SmartSens makes new ways of operating the balance possible. The automatic system functions flawlessly, even under difficult or contaminated conditions, and is always dependable. No maintenance work or adjustments are necessary.

A new slant.

You can adjust the inclination of the operator terminal to make it easy to read even under unfavorable lighting conditions.

Keeping your distance. The operator terminal can be completely separated from the weighing unit and positioned up to five meters away.



Personal inclination. You can adjust the angle of the display unit. This makes it easy to read from any direction, even when the lighting is less than perfect.



“Hands-free operation – a simple but brilliant idea. This leaves me both hands free for weighing – but only with these balances.”
John Miller, lab technician



Proceed with caution. Operation without contact, thanks to SmartSens. Ideal in contaminated environments.

Keep your hands to yourself. Thanks to SmartSens you can weigh without ever touching the balance: taring, printing, opening and closing the door, weighing – all automatic.

A shared resolution. Highest accuracy with the smallest samples.



- Weighing range electronically accurate to 0.0001 mg
- Comprehensive product range with capacities up to 510 g
- High-resolution models for smallest samples
- proFACT for fully automatic calibration and linearity adjustment
- MinWeigh for utmost certainty when weighing very small quantities

A new benchmark.

METTLER TOLEDO has again set new standards for analytical weighing with its UMX and MX microbalances and its AX analytical balances.

Safety factor.

Sophisticated electronic circuitry, with high computing power, filters out environmental disturbances during weighing, such as shaking and air circulation, more effectively than ever. This produces results at accuracies and speeds never before achieved.

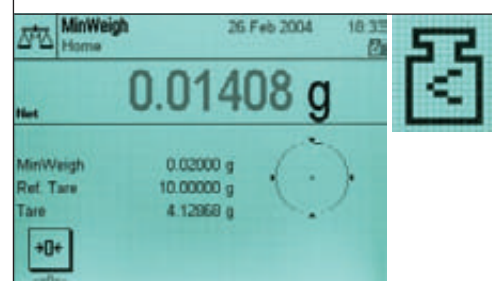
Automatic precision.

Even the slightest environmental influences such as temperature fluctuations affect the weighing results. The built-in proFACT automatic calibration system counteracts this. When the balance goes outside set tolerances, it uses built-in weights to recalibrate itself fully automatically. At the same time linearization is carried out over the entire weighing range. This means that proFACT reduces your costs, because you can forget those daily checks using external weights.

Precious little.

UMX, MX and AX balances offer high maximum loads at a most accurate readability down to 0.1 µg. This means that some models have up to 50 million divisions of resolution. So you can work with even smaller samples and easily comply with international regulations for a defined minimum allowable weight.

100% correct weighing results. MinWeigh warns unmistakably with a weight symbol and gray display if the minimum weight allowed by international guidelines is fallen below. Which ensures that expensive substances are used optimally and not wasted. You will find more information about MinWeigh on page 18.



“Today, particularly in the field of molecular biology, we work with extremely expensive substances and compounds. There is therefore scope for reducing costs, and we take advantage of balances such as the new AX, MX and UMX from METTLER TOLEDO to do just this. It is fantastic how these balances achieve the specified standard deviations, even with the smallest of samples, and thus guarantee valid weight measurements.”

Taro Yamada, Lab Manager



Calibration. Fully automatic, thanks to proFACT. The AX lowers two built-in weights automatically onto the weighing pan, ensuring that you continue to weigh with optimum precision at all times over the entire weighing range.



Minimal. Smaller minimum samples are possible thanks to unprecedented accuracies with the additional inner draft shield on the AX balance.



Little difference. With Delta-Range models, a fine weighing range with ten times the accuracy of the regular range is recalled every time the balance is tared within a certain range. This is ideal when using heavy tare containers for very small samples.

On a fine scale. UMX ultra-microbalances and MX microbalances.



“C’est magnifique, when the best gets even better. Like with the new MX and UMX balances from METTLER TOLEDO. Now we can be certain that we are obtaining valid results even with minimum-weight samples.”

Pierre Louvel
quality manager

- Separate electronics unit for minimum disturbance to weighing process
- Door opened ‘hands-free’ or from keypad
- Rugged construction
- Overload protection
- Easy to clean with removable draft shield
- Filter weighing kit for filter diameters up to 100 mm

Details count.

Earlier models set new standards a few years ago, and are today regarded as the industry benchmark. Now the latest ultra-microbalances and microbalances represent a marked improvement with new electronics and fine honing of every detail. Here again our aim was to fulfill the wishes and needs of users, or better, to exceed their expectations.

Practical solutions.

Despite the sophisticated and clever technology which is used to perform a weighing operation with an unprecedented 50 million calibration divisions, the concept of this high-end balance is completely practical. Every detail bears witness to this. As you work from one sample to the next, you will see that the new METTLER TOLEDO UMX and MX microbalances are designed to boost efficiency, increase reliability and guarantee network compatibility.

Reference class.

The performance of UMX and MX balances is already making them valued instruments in metrological institutes for the certification of weights. And their operation is just as simple and convenient as with analytical balances.



Minutest weighings. With the UMX balances, samples of up to 5 g can be weighed to an accuracy of 0.1 µg.

Accessible from both sides. You can place objects in the weighing chamber from the left or the right: the motorized draft shield can be operated hands-free, from the keypad or by hand. In addition, the glass draft shield cover can be removed for applications that require it.



Highly accurate differential weighing. With a reproducibility never before achieved. The filter set is designed for weighing the finest traces of filter residue (filters up to 110 mm diameter).



Straightforward cleaning. Simply remove the round glass draft shield by hand, and the balance is easy to clean.



Freedom of movement. With AX semi-microbalances and analytical balances.

- Door opened on approach or by pressing a key
- Automatic opening for left- or right-handed operation
- Free access to weighing pan with no cross-struts
- Rugged metal housing
- Low-profile square weighing pan

Practical considerations.

These have led to the unequalled design of the draft shield on semi-microbalances and analytical balances. It can be opened completely. Or only on the side preferred by left- or right-handed users. Or at one side only, for left- or right-handed operators. With hands-free actuation or at the touch of a key, the doors slide open and shut automatically. This is what we mean by convenience. But above all, efficiency.

Long-term decisions.

The materials used to make these balances – glass, metal and performance polymers – are of the highest quality. They are resistant to acids. Cleaning is easy, since there are virtually no awkward grooves or recesses. METTLER TOLEDO balances withstand the rigors of intensive daily use undamaged.

Convenient operation.

The display is easy to read, and the keys are arranged for maximum clarity. A generously dimensioned low-profile weighing pan allows you to rest your hand on the benchtop when weighing in formulations. The weighing chamber is easy to clean.

Free access for robot arms. The generously dimensioned weighing chamber, with no cross-struts, offers unobstructed access from three sides when required.



“I can reach the weighing pan from the side that suits me best. Being left-handed, that makes my life a lot easier. And that’s the great thing about the AX – handy to use, just like I wanted.”

Gisela Bender, lab technician

Detailed print-outs. ISO- and GLP-compliant reports printed by the GA42 on plain paper. It documents the calibration procedures initiated automatically by the AX together with the date, sample and identification numbers, time of day, type of instrument and serial number, and marks a space for your signature.



Free access to the weighing pan.

The three-part draft shield can be opened as a whole, leaving no cross-struts to obstruct access. However, it can also be opened only at the top, left side or right side to access the weighing chamber. So you only need to open the chamber just enough for the weighing task concerned.

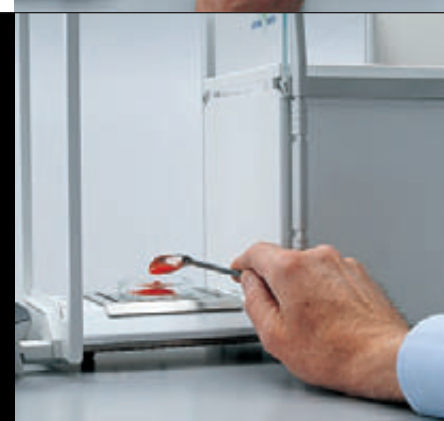


Free access to weighing chamber.

SmartSens opens the weighing chamber at the left, at the right or entirely, depending on the active configuration, when a hand approaches the balance. The front pane provides a protection against radiant heat from the person working with the balance.



Easy on the arm. When dosing into low containers you can rest your hand on the benchtop, since the weighing pan is at such an unusually low level.



A good all-rounder.

Network compatibility with built-in applications.

- Built-in user-guided software as standard
- For density determination, differential weighing, PipetCheck, plus-minus weighing, piece counting
- Optional second interface, LocalCAN or RS232

Plug and weigh. The AX, MX and UMX interface concept guarantees maximum flexibility. One RS232 interface is fitted as standard. You can also equip the balances with an additional RS232 interface, a LocalCAN universal interface or a downward-compatible interface.

Programmable for the future. LocalCAN is a particularly safe investment in future technology. The possibility of programming it externally means that this interface can also comply with future standards. In addition, it enables up to five peripheral devices to be connected at the same time.

Integration into existing systems. If an AX, MX or UMX balance needs to be integrated into an existing system configuration, the 'Mini-Mettler' interface is ideal.

Task-specific adaptability. Practical methods for various frequently used applications are incorporated as standard software.

Density determination. You can calculate the density of solid objects and liquids directly with the buoyancy method. The result is displayed immediately on the balance screen.

Differential weighing. Frequently a routine task: measuring the difference between initial and residual weights as a percentage and in grams. With this application you are free to specify your own working method and sequence.

Pipette checking. The gravimetric method is a particularly reliable and simple way of verifying the accuracy of a pipette. All the data, results, and tolerances of 20 pipettes can be saved in the database. The data, results, and tolerances of 20 pipettes can be stored.



Versatility. The flexible interface concept allows several devices to be connected at the same time. Whether you use an RS232 interface or, with the future in mind, a LocalCAN interface: just connect the peripherals – and you're in business.

Straight talking. You are guided through the differential weighing procedure step by step. Naturally in the language of your choice: English, German, French, Spanish, Italian, Japanese, or Russian.

----- METTLER TOLEDO -----			
DIFFERENTIAL WEIGHING			
1	T	36.22242 g	
1	NI	0.97806 g	
1	ND	0.97515 g	
Diff.:		-0.2975 %	
=====			
2	T	36.22191 g	
2	NI	0.98890 g	
2	ND	0.98593 g	
Diff.:		-0.3003 %	
=====			
3	T	36.22189 g	
3	NI	0.98115 g	
3	ND	0.98569 g	
Diff.:		0.4627 %	
=====			
Signature:			
.....			
----- END -----			



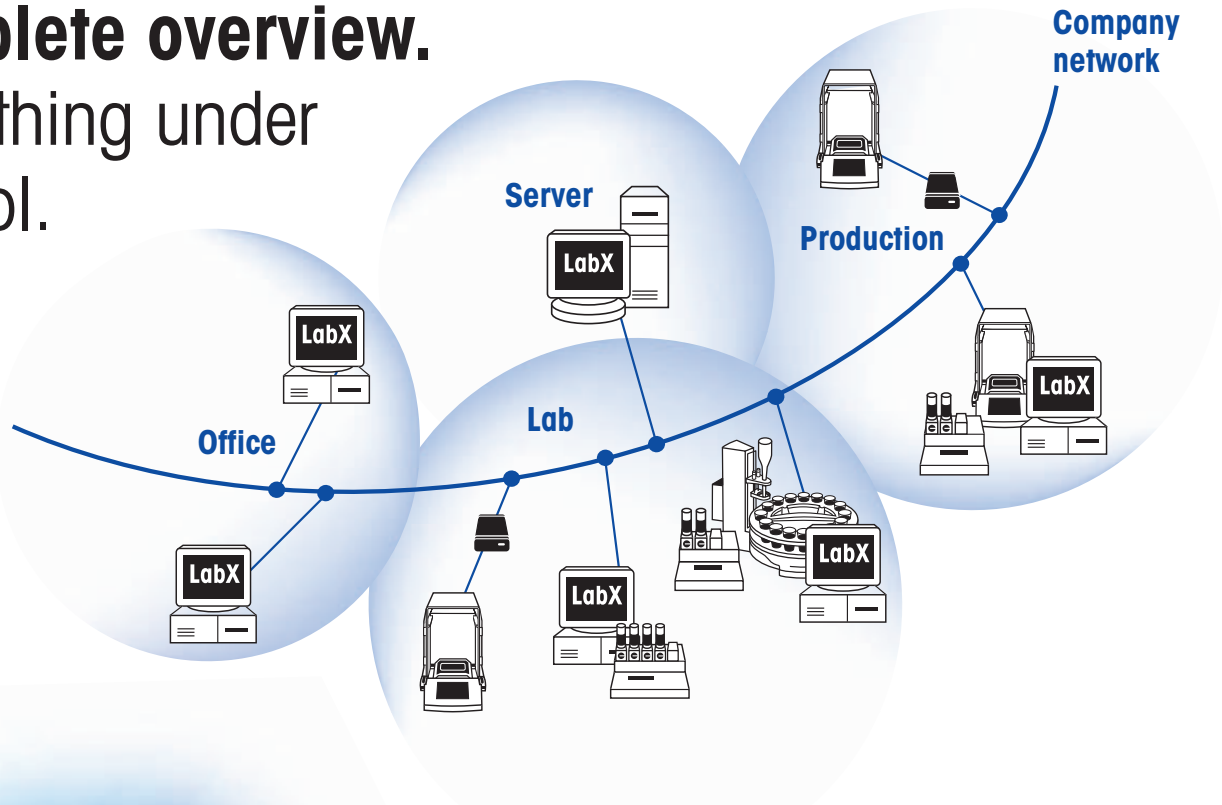
Sophistication. The density kit, accessed from the left or the right, with software already incorporated in the balance for automatically determining the density of solid objects and liquids.

Reliability. The pipette checking application is a very simple and reliable method for verifying the precision and accuracy of your pipettes. Giving you confidence at all times when pipetting.



Pipetting with METTLER TOLEDO. RAININ, a METTLER TOLEDO company, offers a complete system of hand-friendly pipettes, tips, and accessories. You will find more information at www.mt.com

Complete overview. Everything under control.



Monitor your measurements – with LabX, from wherever you like.

LabX allows measurements with AX/MX/UMX balances and titrators to be monitored from anywhere in the network. Just connect your instruments to a PC or directly to your company's Ethernet network and you can validate the data from your office or observe measurements in real time while you work at another workplace.

Direct access to LabX from a balance.

You can work with LabX without ever touching a computer. Balances like the AX, MX, and UMX allow you to login to LabX directly from the balance. To do so, the balance does not even have to be directly connected to a computer: just connect it to your company network via the METTLER TOLEDO e-Link box.

Simplify your routine work.

LabX helps you to simplify your daily work in many areas. For example, you can import your sample data directly from LIMS, create templates for daily routine analyses, prepare statistics and control diagrams, and much more besides. LabX provides you with an array of templates for simple and differential weighing so you can greatly simplify your application structure.



LabX software for balances

Completely efficient instrument management.

With LabX you can manage your instruments centrally. Operations such as validating calibration data, or updating methods, can be performed on the same PC. If desired, changes can be implemented globally for all connected instruments. So you save time and avoid errors.

	LabX pro balance	LabX light balance
METTLER TOLEDO instruments supported	Balances AX, MX, UMX, AG, XS, XP, PR, SR, PG, PG-S, SG, AT, MT, UMT	
Client/server architecture	•	
Control of multiple instruments	•	
Instrument management	•	•
21 CFR Part 11 support	•	
Direct access from balance (RapidAccess)	•	
Online view/control in real time	•	•
Task/methods editor	•	•
Automatic statistics/control diagrams	•	•
Report generator	•	•
LIMS connectability	•	



If you have questions please do not hesitate to contact us or visit our website at

www.mt.com/LabX

Complete support for 21 CFR Part 11.

LabX provides all the tools needed for FDA-compliant data management and storage according to 21 CFR Part 11. These include comprehensive user management, access protection, electronic signature capability, and audit trail functionality. For system validation METTLER TOLEDO offers comprehensive support as well as a two-volume validation manual so that your validation costs stay within limits.



Integrate your instruments into your network with e-Link

e-Link Ethernet Interface allows you to integrate balances, titrators, checkweighers, and terminals into your network without any adaptation of software or hardware, and with e-Link IP even in wet or hazardous areas. e-Link offers everything needed for networking – a processor, a rugged TCP/IP stack, a webserver, and a network connection to create an Ethernet bridge to your serial devices. You will find more information on our website at www.mt.com/elink



System solutions for maximum process optimization. e-Link can be integrated into existing software solutions such as LabX and FreeWeigh.Net.

AX/MX/UMX balances

- Standard features**
- Backlit graphic display with touch screen operation
 - ProFACT, fully automatic temperature-driven calibration and linearization
 - Built-in RS232 interface; plug-in module available for optional second interface of your choice
 - Glass draft shield with automatic door opening and removable cover
 - SmartSens for hands-free operation
 - Replaceable protective cover
 - Below-the-balance weighing facility
 - AC/DC adapter for connection to AC power line
 - Country-specific power cable
 - Weighing adapter for optimum adaptation to ambient conditions

- All models can:**
- Download software from the Internet
 - Display various units of weight
 - Determine the density of solids and liquids
 - Perform differential weighing
 - Check the precision of pipettes
 - Make statistical evaluations
 - Calculate with factors
 - Carry out piece counting and percent weighing operations
 - Be tared over the entire weighing range
 - MinWeigh (activated by local MT Service at your workplace)

AX-SE – for weighing in contaminated or underpressure environments



Thanks to a separate control unit for all AX modules the electronics can be placed separate from the weighing cell.5 m cable.

Part no. 11100030



5 m terminal cable with cover plate.

Part no. 11100081



RS-P42 printer
The RS-P42 printer documents the measurement values from the UMX, MX, and AX simply and securely according to guidelines of modern Q systems.

Funnel set
For simple weighing of small amounts of powdery substances.
For balance models: MX/UMX
MX/UMX funnel set

Part no. 211220



Filter weighing
Special filter sets for MX micro and AX semi-micro balances. Suitable for filters up to 110 mm diameter. The special construction largely prevents disturbing environmental influences.



For balance models:
AX26, AX26DR
AX105DR
AX205, AX205DR

AX filter set for filters up to Ø 105 mm

Part no. 210470

For balance models:
MX, UMX

Filter sets for filters up to Ø 50 mm

Part no. 211214

Filter sets for filters up to Ø 110 mm

Part no. 211227

U ionizer
Usable with practically all balances and weighing objects, the ionization system comprises a U-shaped ionizer and a high-voltage power supply unit. The object or container being weighed is discharged by being passed through the U ionizer when loading the balance. The object being weighed is neutralized. The neutralization process takes only seconds. Although the ionizer uses a high voltage, it can be touched with absolute safety. You will find more information about anti-static solutions in our separate brochure.

- Accessories**
- LocalCAN universal interface module
 - RS232 interface module
 - MiniMettler interface module
 - Auxiliary display
 - Interface cable
 - BalanceLink PC software for data acquisition by a PC
 - Foot switch
 - Carrying case

Technical data (threshold values)	UMX2	UMX5	MX5	AX26	AX26DR	AX105DR	AX205	AX205DR	AX204	AX204DR	AX304	AX504	AX504DR
Maximum capacity	2,1 g	5,1 g	5,1 g	22 g	21 g	110 g	220 g	220 g	220 g	220 g	310 g	510 g	510 g
Maximum capacity of fine range	–	–	–	–	3 g	31 g	–	81 g	–	81 g	–	–	81 g
Readability	0,0001 mg	0,0001 mg	0,001 mg	0,001 mg	0,01 mg	0.1 mg	0.01 mg	0.1 mg	0.1 mg	1 mg	0.1 mg	0.1 mg	1 mg
Readability in fine range	–	–	–	–	0,002 mg	0.01 mg	–	0.01 mg	–	0.1 mg	–	–	0.1 mg
Repeatability (sd) at maximum capacity	0,00025 mg	0,0004 mg	0,0009 mg	0,002 mg	0,006 mg	0.05 mg	0.03 mg	0.06 mg	0.07 mg	0.6 mg	0.1 mg	0.1 mg	0.6 mg
Repeatability (sd) (at gross capacity)	0,00025 mg (0,2 g)	0,00025 mg (0,2 g)	0,0008 mg (0,2 g)	0,0015 mg (1 g)	0,002 mg (1 g)	0.015 mg (10 g)	0.015 mg (10 g)	0.015 mg (10 g)	0.05 mg (10 g)	0.05 mg (10 g)	0.07 mg (10 g)	0.07 mg (10 g)	0.1 mg (10 g)
Linearity	0,001 mg	0,004 mg	0,004 mg	0,006 mg	0,008 mg	0.15 mg	0.1 mg	0.15 mg	0.2 mg	0.3 mg	0.3 mg	0.4 mg	0.5 mg
Corner load at 1/2 maximum capacity ¹⁾	0,0025 mg	0,005 mg	0,005 mg	0,025 mg	0,025 mg	0.25 mg	0.25 mg	0.25 mg	0.25 mg	0.25 mg	0.5 mg	0.6 mg	0.6 mg
Sensitivity drift	1,5 x 10 ⁻⁵	7,0 x 10 ⁻⁶	7,0 x 10 ⁻⁶	2,5 x 10 ⁻⁶	3,0 x 10 ⁻⁶	4.0 x 10 ⁻⁶	1.5 x 10 ⁻⁶	2.0 x 10 ⁻⁶	2.5 x 10 ⁻⁶	3.0 x 10 ⁻⁶	5.0 x 10 ⁻⁶	5.0 x 10 ⁻⁶	7.0 x 10 ⁻⁶
Temperature drift of sensitivity ²⁾	0,0001%/°C	0,0001%/°C	0,0001%/°C	0,0001%/°C	0,0001%/°C	0.0001%/°C	0.0001%/°C	0.0001%/°C	0.0001%/°C	0.0001%/°C	0.0001%/°C	0.0001%/°C	0.0001%/°C
Stability of sensitivity ³⁾	0,0001%/a	0,0001%/a	0,0001%/a	0,0001%/a	0,0001%/a	0.0001%/a	0.0001%/a	0.0001%/a	0.0001%/a	0.0001%/a	0.0001%/a	0.0001%/a	0.0001%/a
Typical weighing time ⁴⁾	16 s	18 s	16 s	16 s	16 s	12 s	12 s	12 s	4 s	4 s	4 s	4 s	4 s
Update rate of the interface	7 /s	7 /s	7 /s	7 /s	7 /s	7 /s	7 /s	7 /s	7 /s	7 /s	7 /s	7 /s	7 /s
Weighing unit dimensions (wxdxh) [mm]	128 x 287 x 113	128 x 287 x 113	128 x 287 x 113	241 x 505 x 293	241 x 505 x 293	241 x 505 x 293	241 x 505 x 293	241 x 505 x 293	241 x 505 x 293	241 x 505 x 293	241 x 505 x 293	241 x 505 x 293	241 x 505 x 293
Control unit dimensions (wxdxh) [mm]	224 x 366 x 94	224 x 366 x 94	224 x 366 x 94	–	–	–	–	–	–	–	–	–	–
Effective height draft shield [mm]	55	55	55	240	240	240	240	240	240	240	240	240	240
Weighing pan dimensions (wxd) [mm]	16	16	27	28	32	80 x 80	80 x 80	80 x 80	80 x 80	80 x 80	80 x 80	80 x 80	80 x 80

¹⁾ To OIML R76 ²⁾ In the temperature range 10...30 °C ³⁾ Stability of sensitivity when first put into operation with proFACT self-adjustment switched on ⁴⁾ Includes sample handling and stabilization time

Typical data for calculating the measurement uncertainty

Typical repeatability (sd)	0.0002 mg +2.5x10 ⁻⁶ •R _{gr}	0.0002 mg +3x10 ⁻⁸ •R _{gr}	0.0005 mg +4x10 ⁻⁸ •R _{gr}	0.001 mg +2.5x10 ⁻⁶ •R _{gr}	0.004 mg +5x10 ⁻⁶ •R _{gr}	0.04 mg +1x10 ⁻⁷ •R _{gr}	0.01 mg +6x10 ⁻⁶ •R _{gr}	0.04 mg +5x10 ⁻⁶ •R _{gr}	0.04 mg +5x10 ⁻⁶ •R _{gr}	0.4 mg +5x10 ⁻⁷ •R _{gr}	0.04 mg +6x10 ⁻⁸ •R _{gr}	0.04 mg +6x10 ⁻⁸ •R _{gr}	0.5 mg +2x10 ⁻⁷ •R _{gr}
Typical repeatability in fine range (sd)	–	–	–	–	0.0015 mg +5x10 ⁻⁷ •R _{gr}	0.01 mg +6x10 ⁻⁷ •R _{gr}	–	0.01 mg +2.5x10 ⁻⁷ •R _{gr}	–	0.04 mg +1.2x10 ⁻⁷ •R _{gr}	–	–	0.04 mg +4x10 ⁻⁷ •R _{gr}
Typical differential non-linearity (sd)	√ 1x10 ⁻¹⁴ g•R _{nt}	√ 8x10 ⁻¹⁴ g•R _{nt}	√ 8x10 ⁻¹⁴ g•R _{nt}	√ 5x10 ⁻¹⁴ g•R _{nt}	√ 8x10 ⁻¹⁴ g•R _{nt}	√ 6x10 ⁻¹² g•R _{nt}	√ 1x10 ⁻¹² g•R _{nt}	√ 3x10 ⁻¹² g•R _{nt}	√ 5x10 ⁻¹² g•R _{nt}	√ 1x10 ⁻¹¹ g•R _{nt}	√ 8x10 ⁻¹² g•R _{nt}	√ 8x10 ⁻¹² g•R _{nt}	√ 1.5x10 ⁻¹¹ g•R _{nt}
Typical differential corner-load deviation (sd)	2.5x10 ⁻⁷ •R _{nt}	3x10 ⁻⁷ •R _{nt}	3x10 ⁻⁷ •R _{nt}	2.5x10 ⁻⁷ •R _{nt}	2.5x10 ⁻⁷ •R _{nt}	5x10 ⁻⁷ •R _{nt}	2.5x10 ⁻⁷ •R _{nt}	2.5x10 ⁻⁷ •R _{nt}	2.5x10 ⁻⁷ •R _{nt}	2.5x10 ⁻⁷ •R _{nt}	2.5x10 ⁻⁷ •R _{nt}	2x10 ⁻⁷ •R _{nt}	2x10 ⁻⁷ •R _{nt}
Typical sensitivity drift (sd)	3x10 ⁻⁶ •R _{nt}	1.5x10 ⁻⁶ •R _{nt}	1.5x10 ⁻⁶ •R _{nt}	8x10 ⁻⁷ •R _{nt}	8x10 ⁻⁷ •R _{nt}	8x10 ⁻⁷ •R _{nt}	6x10 ⁻⁷ •R _{nt}	6x10 ⁻⁷ •R _{nt}	6x10 ⁻⁷ •R _{nt}	6x10 ⁻⁷ •R _{nt}	6x10 ⁻⁷ •R _{nt}	8x10 ⁻⁷ •R _{nt}	8x10 ⁻⁷ •R _{nt}
Typical minimum weight (per USP) ¹⁾	0.6 mg +7.5x10 ⁻⁵ •R _{gr}	0.6 mg +9x10 ⁻⁵ •R _{gr}	1.5 mg +1.2x10 ⁻⁴ •R _{gr}	3 mg +7.5x10 ⁻⁵ •R _{gr}	12 mg +1.5x10 ⁻⁴ •R _{gr}	120 mg +3x10 ⁻⁴ •R _{gr}	30 mg +1.8x10 ⁻⁴ •R _{gr}	120 mg +1.5x10 ⁻⁴ •R _{gr}	120 mg +1.5x10 ⁻⁴ •R _{gr}	1200 mg +1.5x10 ⁻³ •R _{gr}	120 mg +1.8x10 ⁻⁴ •R _{gr}	120 mg +1.8x10 ⁻⁴ •R _{gr}	1500 mg +6x10 ⁻⁴ •R _{gr}
Typical minimum weight (per USP) in fine range ¹⁾	–	–	–	–	4.5 mg +1.5x10 ⁻³ •R _{gr}	30 mg +1.8x10 ⁻³ •R _{gr}	–	30 mg +7.5x10 ⁻⁴ •R _{gr}	–	120 mg +3.6x10 ⁻⁴ •R _{gr}	–	–	120 mg +1.2x10 ⁻³ •R _{gr}

sd: Standard deviation R_{gr}: Gross weight R_{nt}: Net weight (sample weight) a: Year (annum)
¹⁾ The minimum weight can be improved by the following measures: Choice of more suitable weighing parameters, selection of a better location, use of smaller tare containers, use of an inner draft shield

When very small weights are highly important.

MinWeigh, another innovation from METTLER TOLEDO.

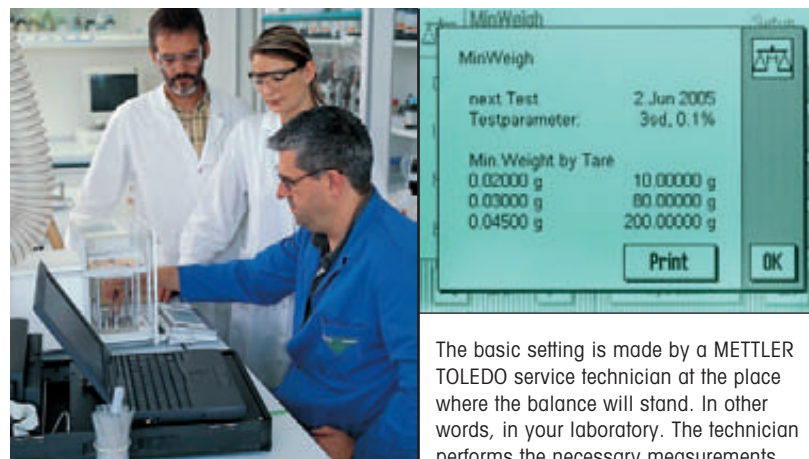
MinWeigh is the new "Quality Application" for AX, MX, and UMX balances.

MinWeigh revolutionizes weighing where very small weights become highly important because quality management demands absolute compliance with specified tolerances. Because MinWeigh answers the minimum weight question with unprecedented precision.

Central challenge: Standards.

MinWeigh provides an outstanding service where guidelines of a quality assurance system such as GLP or GMP apply.

Central question: quality. In a quality management system, measurement uncertainty cannot be left to chance. It must lie within defined limits. How large must the minimum weight be to come inside the tolerances of the quality management system?



The basic setting is made by a METTLER TOLEDO service technician at the place where the balance will stand. In other words, in your laboratory. The technician performs the necessary measurements. According to the specifications of your quality assurance system he determines the minimum weight with the best possible settings and the typically used tare weight.

Central function: MinWeigh.

METTER TOLEDO offers a solution for the minimum weight with the MinWeigh application which is built into the AX/MX/UMX balances. MinWeigh knows the required minimum weight. If the minimum weight is not reached, MinWeigh detects the error and warns you via the balance terminal. Further use of non-compliant weighing results is prevented.



When the minimum weight is reached, the display changes from gray to black. The weight symbol disappears.

```
MinWeigh
8.Mar 2004      11:08
User      Pierre Louvel
Type      AX205
SNR       1119292912

T      16.22992 g
#N      0.01729 g

Signature
.....
```

If the minimum weight is not reached, the net weight is marked with an asterisk on the report.

Tailored service from METTLER TOLEDO.
We offer the corresponding all-round service for balances which form part of a quality management system or are used in regulated areas.

Systematic control of inspection, test, and measuring equipment is more important than ever before. Not only as a crucial component of seamless quality assurance but also as an additional instrument for permanently reducing costs. It also avoids complaints by inspectors and auditors. The Q-circle (qualification/validation) illustrates simply how the regulations are applied in practice to a balance and how we can support you with our services in all areas.

Suitable for:

- Companies which comply with GMP, GLP, ISO
- FDA regulated areas
- Pharmaceutical industry
- Chemical industry (suppliers to the pharma industry)
- Biotechnology
- Food industry
- Electrical, metal, and automobile industries



Design Qualification (DQ)

Define the requirements for a product according to the specification, regulations, and compliances.

Installation Qualification (IQ)

Correct and documented installation at the right location.

Operational Qualification (OQ)

Check and confirm the required performance data.

Performance Qualification (PQ)

Check that in normal operation the instrument constantly performs according to specification.

Maintenance Qualification (MQ)

Periodic mainten

Make sure that your balance is optimally configured to your needs right from the start. Qualification of your balance ensures precision, reliability, and a long service life. Benefit from the worldwide know-how and years-long experience of METTLER TOLEDO. Combine our different service offerings into an optimal solution for your service needs.

Packaged service. Tailored to your needs.

Service Packages

Simply select the appropriate service package according to the demands placed on the balance. You can add further services to ensure the package matches your changing requirements.

Service specialists

With sales and service companies in more than 100 countries, METTLER TOLEDO ensures you are cared for by highly trained specialists.

Service know-how

Knowledge and practical experience is exchanged within our global service network – for your benefit, too.

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